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of
Medical Laboratory Technology

ORGAN OF THE SOCIETY OF MEDICAL LABORATORY
TECHNOLOGISTS OF SOUTH AFRICA

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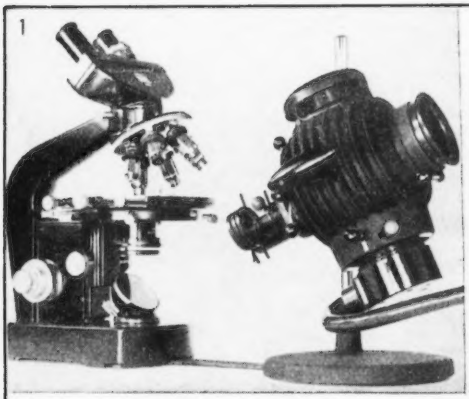

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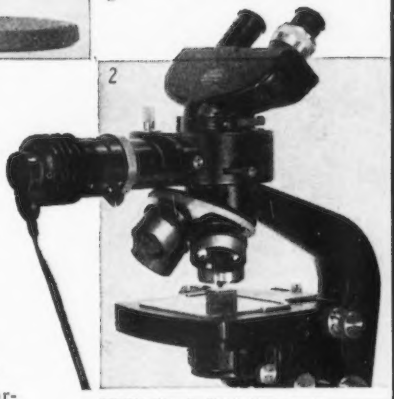

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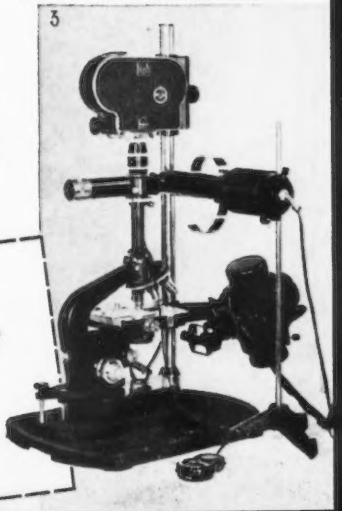

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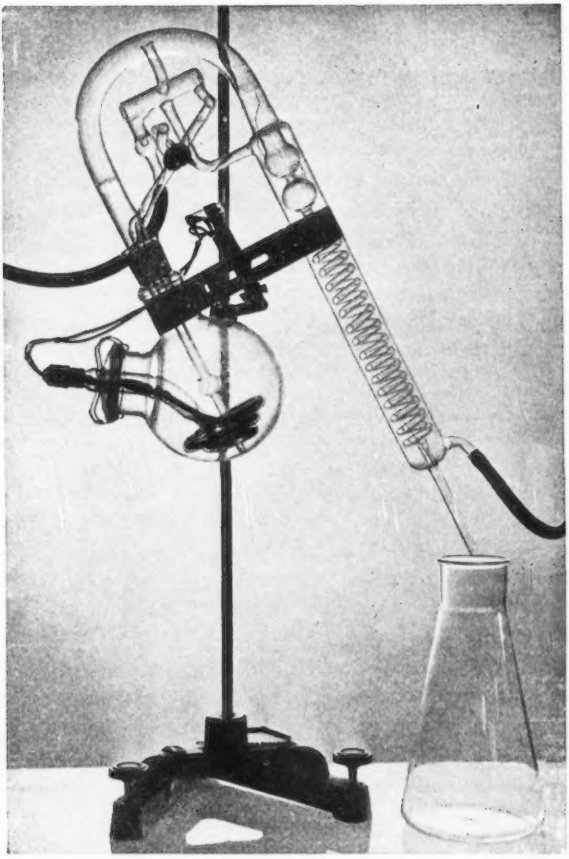

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Editorial

MEDICAL TECHNOLOGIST AND TECHNICAL ASSISTANT

The current world shortage of trained medical laboratory technologists has again brought to light the vexed question of the technical assistant or laboratory aide.

The root cause of the shortage is that current salaries, which may attract women, do not attract young men to the profession and stability is lost. A young man, with an eye to marriage and family responsibilities, looks for employment in which years of post-matriculation training are rewarded by commensurate remuneration. He is therefore not attracted to medical technology. The young girl usually works only until marriage and family responsibilities take her away from the laboratory.

The result is a partial vacuum.

If we accept, as obviously we must, that patient care is the prime responsibility of medical services, we must assist in every possible way to maintain that care. We do so by seeing that the laboratory is available as a service to the patient.

The current shortage places heavy responsibilities on the shoulders of the trained medical technologist, a situation which, by the very nature of his training, he accepts readily. His load can be lightened by the acceptance of the valuable routine work which can be done by a technical assistant, particularly in such departments as routine serology. Elsewhere in this issue mention is made of a suggestion for applying a suitable medical technologist/technical assistant ratio in a laboratory.

The problem is an urgent one which requires earnest consideration rather than hasty, emotionally conceived opinions.

Van die Redakteur

DIE MEDIESE TEGNOLOOG EN DIE TEGNIESE ASSISTENT

Die huidige wêreld-tekort aan opgeleide mediese laboratorium tegnoloë het die kwessie dat die tegniese assistent of hulptegnikus weereens onder bespreking kom, genootsaak.

Die oorsaak van die tekort is te wyte aan die feit dat salarisse op die oomblik meer aantreklik is vir vrouens as vir mans met die gevolg dat daar 'n mate van onstandvastigheid ontstaan in die laboratoriumdiens. 'n Jong man, vir wie die huwelikslewe voor die deur staan met gevolglike verantwoordelikhede, sal ongetwyfeld 'n betrekking soek waarin sy jare van na-matrikulasie onderrig ten volle beloon sal word. Mediese tegnologie interesseer hom dus nie. Die jong dametegnoloog werk gewoonlike net tot tyd en wyl sy trou en familie sake haar dwing om die laboratorium te verlaat.

Die gevolg is tydelike ongevulde poste.

Ons moet ten volle besef dat die vernaamste verantwoordelikheid van die opgeleide mediese tegnoloog die versorging is van die pasiënt, en om hierdie rede moet ons alles in ons vermoë doen om die diens ten beste te lewer.

Die tekort aan tegnoloë, wat op die oomblik bestaan, plaas swaar verantwoordelikhede vierkantig op die skouers van die opgeleide mediese tegnoloog—'n toestand van sake wat hy sonder aarseling aanneem vanweë sy opleiding. Nieteenstaande dit alles, kan sy veeleisende werk grootliks vergemaklik word deurdat roetine toetsing uitgevoer kan word deur laboratorium assistente, veral in afdelings soos serologie. Elders in hierdie uitgawe word versoek, sover dit eintlike getalle aangaan, in watter verhouding laboratorium tegnoloë en laboratorium assistente in 'n laboratorium behoort saam te werk.

Die probleem is dringend en moet ernstig oorweeg word sonder enige haastigheid en ontbloot van enige emosionele bedenkings.

THEORIES OF STAINING

J. L. HERRICK

The Laboratory, King Edward VIII Hospital, Durban

In theory, the staining of microscopic structures and the dyeing of textile fabrics are the same. In the first instance, microscopic detail is better observed and in the second instance only the gross effects are seen. Any theory, therefore, that explains the mechanism of microscopic staining should adequately account for dyeing in bulk.

The majority of theories on staining which have been put forward have stressed either physical or chemical phenomena, but not both simultaneously. The fact that the dyes combine so firmly with the tissues and other elements stained by them would appear to be evidence that the phenomenon must be a chemical one. On the other hand, the exponents of the physical theory of staining have shown, at least to their own satisfaction, that all the observed facts can be explained on a physical basis and that certain observations are difficult to explain if a chemical union between tissue and dye actually occurs.

Thus, in a chemical union a new substance is formed which does not necessarily have the properties of either of the substances from which it is formed and it is usually impossible to recover the original substances by simple solvents. When tissue is stained, however, there is, commonly, no evidence of any new substance being formed, the coloured tissue merely taking on one of the characteristics of the dye, namely, the colour. Moreover, it is usually possible to extract all or nearly all of the colour by sufficiently long immersion in water or by the relatively brief action of alcohol.

THE PHYSICAL THEORY

The protagonists of the physical theory of staining contend that all ordinary dyeing or staining phenomena can be explained on the basis of the following three factors, all purely physical in nature. It is maintained that these three factors, either together or separately, can explain many, if not all, staining phenomena.

Firstly, since nearly all substances stained are porous to a degree, simple physical forces such as capillarity and osmosis can account for penetration of the dye into the interior of tissue.

Secondly, the action of adsorption can account for many staining phenomena, even for much of the selective or differential staining with which the biologist is familiar. Adsorption is the property possessed by solid bodies of attracting to themselves minute particles of matter from a surrounding fluid. The principle of selective adsorption in which

certain ions may be adsorbed by certain substances much more readily than by others is well known to physical chemists. This influence is markedly demonstrated by the reaction of the solution, that is by the concentration of free hydrogen or hydroxyl ions in the fluid. Thus, the influence of OH ions on the adsorption of basic ions is exactly the opposite from its effect on the adsorption of acid ions. Namely, basic ions are repelled whilst acid ions are attracted.

The third factor of a physical nature is the phenomenon of adsorption by which a dye may penetrate a cellular element and remain there in a state of "solid solution". This penetration of the dye into the tissue and cells by osmotic action is generally admitted though some students of the subject favour adsorption, others absorption as the primary explanation of staining phenomena. The simplicity of the absorption or "solution" theory is attractive and the action of some dyes on certain types of cellular tissue in the presence of mineral salts suggests that this factor is very important in some instances. Support is also given to the "solution" theory by the fact that most dyes impart to the tissue the same colour as the dye shows in solution and this is not necessarily the same colour as it shows in the dry form. For example, dry Fuchsin is green, but, in solution it is red as are tissues stained by it no matter how completely they may be dried. Nevertheless, it is difficult to explain all staining phenomena, particularly differential staining, on the basis of solution.

It is admitted by some of those who hold, in general, to the physical theory of staining that these simple physical factors do not explain everything, as for example, those instances in which a dye penetrates different elements of a cell equally readily and yet can be easily extracted from some of the cell elements but scarcely at all from others. Such facts admit the possibility of chemical action without necessarily assuming actual chemical reaction between dye and tissue. It has been suggested that effects of this type are based on precipitation. Thus, it is well known that certain tissues which only stain feebly if at all with certain dyes, "take" these same dyes deeply if previously treated with the proper chemical. This process is known as mordanting and the chemical used in the prior treatment of the tissue as a mordant. It is thought by some that such mordants may already be present in the tissue thus causing precipitation of the dye inside the cell walls.

THE CHEMICAL THEORY

It may well be that the reactions involved in staining are somewhere on the borderline between physical and chemical reactions, and it would, therefore, in the present state of our knowledge, be impossible to say that a given reaction is either purely physical or purely chemical. There are, however, certain chemical principles quite different from

the physical ones described above and it is these that the exponents of the chemical theory of staining consider to be most important. We know that some parts of the cell are acid in reaction, others alkaline or basic and this is the fundamental principle in the chemical theory of staining. Thus, it is generally assumed that the nuclei of the cells, due mainly to the nucleic acid content of their chromatin, are acid in character and it is well established that they have a strong affinity for basic dyes, for example, haematoxylin and the methylene blue compounds of the Romanowsky stains, namely Leishman, Giemsa, etc. Conversely, the cytoplasm, which is generally agreed to be basic in character has a decided affinity for acid dyes, for example, eosin. In other words, it would appear that tissues have certain definite affinities which are satisfied by the chemical affinities of the dyes so that when tissue is placed in a solution of dye, the latter combines with those portions of the tissue or of the individual cells which have the proper chemical nature. This is by no means the whole of the chemical theory of staining but it is no doubt sufficient to indicate the importance of chemical reactions in the staining of biological material.

SUMMARY

Enough has been written here to emphasise the great complexity of staining processes and it is probably true to say that both physical and chemical actions play their part. No doubt as time goes on and further discoveries are made the whole mechanism of staining will become clearer.

PRIZE IN PARASITOLOGY

The judges have announced that, in their opinion, the prize-winning entry in the above Essay Competition is that of

MR. E. J. WILLE,
Pathological Laboratory Services,
Natal Provincial Administration.

The Director of the Amoebiasis Research Unit, C.S.I.R./ University of Natal/Natal Provincial Administration, will present the award at a suitable function of the Natal Branch of the Society later this year.

RULES AND REGULATIONS

A Historical Review

G. W. WIKELEY

Pathological Laboratory Services, Natal Provincial Administration

The growth of the Society of Medical Laboratory Technologists of South Africa is intimately bound up with the promulgation of Rules and Regulations regarding the registration of Medical Technologists and amendments to those Rules, so that a historical review may be of benefit to the many younger members of the Society.

Prior to 1949 various attempts had been made to organise medical laboratory workers into an association or society with a view to forming a stable professional body for them. That all efforts were unsuccessful was probably due to lack of a cohesive force.

Then, on 30th September, 1949, Government Notice No. 2043 announced Rules and Regulations for the Registration of Medical Technologists. The purpose of these Rules was to enable the South African Medical and Dental Council to compile and maintain a Register of Medical Technologists. Such a register would be of immense value to the country in time of national emergency.

These Rules served the secondary purpose of stimulating medical technologists to organise themselves for their own welfare and protection and within a few months the Society of Medical Technologists of Natal, the Southern Transvaal Association of Medical Technologists and the Cape Society of Medical Technologists were in operation. Stimulation was given by certain defects and anomalies in the Rules as promulgated. Each Society made representations to the South African Medical and Dental Council and naturally a certain amount of divergence of opinion immediately became apparent.

At the suggestion of Medical Council, representatives of the societies met in Johannesburg to consider the formation of a unified Society of Medical Technologists. In April, 1951, the Society of Medical Laboratory Technologists of South Africa was formed with three branches, Natal, Southern Transvaal and Cape. In this article I propose to deal with the Society and its interest in suitable legislation towards training and registration.

The broad principle of a Register was accepted by medical technologists as being in the public interest and the Society has, at all times, done its utmost to ensure that those technologists admitted to the Register should have attained a high standard of efficiency.

A memorandum submitted to the South African Medical and Dental Council by the Society of Medical Technologists of Natal in December, 1950, made, *inter alia*, the following criticisms of Government Notice No. 2043:—

(a) The set curriculum appeared to place equal emphasis on the ancillary subjects (anatomy, physiology, physics) and on the major subjects (bacteriology, biochemistry, etc.).

(b) The lack of both a syllabus and defined examination arrangements threw the onus of defining the qualifying standard on local laboratories and was consequently open to abuse.

(c) Any system whereby all theoretical training is confined to the first three years of apprenticeship is basically incorrect. Experience in Natal showed that the organisation of certain laboratories was such that a student could not, in three years, get practical experience in the main technical subjects. Consequently the situation arose in which a candidate was expected to sit a qualifying examination in a subject in which he or she had had no practical experience.

(d) The curriculum, by implication, placed undue emphasis on theoretical knowledge, whereas the proper emphasis should be on practical experience.

(e) The position of science graduates in medical laboratories was not defined.

(f) The lack of a suitable title after registration was a serious omission.

(g) Registration was not compulsory.

(h) There was no provision for specialist qualification compared with U.S.A. (Specialist Certificate in Bacteriology), or the U.K. (Fellowship of the Institute of Medical Laboratory Technology).

(i) The status of medical technologists was not, in any way, advanced by these regulations.

With regard to (c) above, it should be noted that the South African Institute for Medical Research had found it entirely practicable to conduct a three-year course of training for its own apprentices within the framework of its relatively closely knit organisation. The experience in Natal, where a number of small hospital laboratories was maintained, was not so happy.

Accordingly, a number of recommendations were submitted in the memorandum:—

1. Registration should be strictly confined to technologists engaged in "Clinical Pathology" and a medical technologist should be

defined as "a person working in any laboratory engaged in Clinical Pathology, the head of which is a registered Medical Practitioner". This last proviso was to apply during the training period, but after qualification a technologist who worked in a biochemical laboratory whose head was not a registered medical practitioner would not lose his status.

2. The minimal educational certificate should be the Senior School Leaving Certificate, which should include chemistry and physics or physical science.

3. The first three years should be spent on practical work in an approved laboratory. Instruction during this period should be given by trained medical technologists. At the completion of this three year period the student should sit an Intermediate Examination consisting of one general paper of three hours, one practical paper of three hours and an oral examination.

4. During the fourth and fifth years, candidates should be required to take examinations in—

   (i) Pathological Technique,
   (ii) Chemical Pathology,
   (iii) Haematology and Parasitology,
   (iv) Bacteriology and Serology.

   The examinations should consist of a written paper of three hours, a practical of three hours and an oral for each of the above groups.

5. Exemption from the Intermediate Examination should be granted to persons with equivalent qualifications (e.g., the Intermediate Examination of the Institute of Medical Laboratory Technology).

6. Science graduates should normally be required to sit the Intermediate Examination but should be entitled to do so at any time without being subjected to the first three years of training. Exemptions from final subjects should also be given to persons holding appropriate degrees (e.g., B.Sc. Bacteriology—exempt from Group iv; B.Sc. Comparative Histology—exempt from Group i, etc.). Irrespective of exemptions, graduates should work in an approved laboratory for two years after passing the Intermediate Examination.

7. At the completion of the course, successful candidates should receive a Licentiateship in Medical Laboratory Technology and should be entitled to use the letters L.M.L.T. I was also recommended that the holders of this qualification should be permitted to perform venipunctures as this is normally part of such training.

8. Provision should be made for specialist qualification of Diploma in Medical Laboratory Technology, by examination in any one of the subjects: Chemical Pathology, Parasitology, Bacteriology, Pathological Technique and Haematology and Blood Transfusion Technique, e.g., D.M.L.T. (Chem. Path.), D.M.L.T. (Parasit.), D.M.L.T. (Bact.), (Path.) or (Haem.).

   Candidates for these Diplomas should have been qualified L.M.L.T. for five years, produce evidence of original work, and should sit a written, practical and oral examination of a suitably high standard.

9. Examinations should be conducted on a national level and in each subject the examining board should consist of one pathologist and two senior medical technologists.

10. Examinations should be held not less frequently than twice a year, and at each centre at which they are held one senior medical technologist should be an external examiner.

11. A central body consisting of representatives of Medical Technologists, Union Health Department, the South African Institute of Medical Research, the Universities and Natal Provincial Laboratory Service should be set up to advise the South African Medical and Dental Council and to act as the Central Examining Body. On this body medical technologists should have equal representation.

Suitable syllabuses were submitted as part of the memorandum.

This represented an early attempt by organised medical technologists to set their house in order.

At the same time the Cape Society drew attention to the lack of Examining Board and of approved syllabuses of training and the Southern Transvaal Medical Technologists' Association submitted syllabuses which they considered suitable. This Association pointed out that the need of the country made it obligatory to provide adequate all-round training and suggested that higher qualifications could perhaps be provided by University courses in the relevant subjects.

The South African Medical and Dental Council, through its Auxiliaries Committee, suggested that the Medical Technologists' Societies combine and attempt to provide a unanimous scheme, and, as previously stated, this was done in 1951. Tentative syllabuses were submitted by the Society for consideration by the Auxiliaries Committee at its meeting in July, 1951. These syllabuses were approved by the Committee.

Meanwhile, in Durban, the Natal Technical College, with the co-operation of the Provincial Pathologist, the Senior Government Pathologist and the Natal Branch of the Society, was controlling courses by means of a Medical Technologists' Consultative Committee, which exercised supervision of lecturers and organised examinations to a standard approved by Medical Council. This represented the first non-departmental, co-operative attempt to solve the problem of examination and teaching levels. This Committee is still operative.

The South African Institute for Medical Research and the University of Cape Town each continued with its own training scheme.

In March, 1951, the first amendment to Government Notice No. 2043 was gazetted. Government Notice No. 668 of 1951 set the educational standard for students as the "Senior School Leaving Certificate".

During 1952 the Medical Technologists' Consultative Committee of the Natal Technical College, through the Principal of the College, submitted proposals for major changes in the rules. The proposals were also submitted to the Society and discussed by Branch Committees. The Society supported the principle of the proposed amendments but suggested a few alternative provisos.

These proposals envisaged an Intermediate Examination after two years, followed by a composite final examination which would be written on not more than two subjects a year during the remaining three-year period.

Suggestions were also made to clarify the position of Science graduates. The proposed amendments were discussed by the Society during 1952 and submitted to the Auxiliaries Committee of the South African Medical and Dental Council in December, 1952. The Auxiliaries Committee accepted the proposals together with the recommendations of the Society and during the early part of 1953 the Registrar re-drafted the rules and the amendments were gazetted in Government Notice No. 1397 of 1954. These are the rules which are operative to-day.

At this time the Supplementary Health Services Bill, which would provide for the compulsory registration of all medical auxiliaries, was to go before Parliament. The Bill was to have been read for the second time on Wednesday, 2nd February, 1955. The Society acknowledged the necessity for such registration and reiterated its support for the Bill. Unfortunately this Bill has not yet been passed by Parliament but has been sent back for re-drafting as no single Bill can adequately deal with the different types of medical auxiliary. It did, however, serve the purpose of stimulating interest in medical technology as provision was made in the proposed Bill for a controlling body for each type of medical auxiliary. This body was to be composed of not more than six members of whom "(a) not less than two and not more than four

shall be persons registered in the class in respect of which the committee is established" and "(b) not less than one and not more than two shall be appointed by the Council from amongst its members". "Council" here refers to the South African Medical and Dental Council. This establishment was modified by the clause "the number of persons appointed under paragraph (b) as members of a committee shall be at least one less than the number appointed or elected under paragraph (a) as members of the Committee".

Here for the first time is mention of a group of medical auxiliaries being able to control their own affairs within the framework of the Medical, Dental and Pharmacy Act. Medical technologists welcomed this advance but it was greeted with some measure of disapproval by some members of the medical profession, particularly by some pathologists. An awareness of the problems associated with the training of medical laboratory workers was now becoming apparent and the Society welcomed this and looked forward to fruitful co-operation between interested groups and in particular with the Pathologists' Group of the Medical Association of South Africa as it was felt that no unilateral effort would ever reach a satisfactory conclusion.

The Society continued to press for the establishment of a central control board for medical technologists so that training and examination at a uniform, national level could be instituted at an early date, and in October, 1955, proposed to Medical Council that the relevant clause in the proposed Supplementary Health Services Bill be adopted as a basis for discussion. At the same time the Provincial Pathologist, Natal Provincial Administration, and the present writer prepared a memorandum comparing and contrasting the various methods of training known to them. This memorandum was submitted to Medical Council and distributed to all interested parties. Criticisms of this memorandum, and counter memoranda submitted by interested people during 1956 led Medical Council to call a meeting of a "Special Committee appointed to consider and report on the desirability, or otherwise, of maintaining a Register for Medical Technologists, and matters germane thereto".

This Committee of five members of Medical Council met in Johannesburg on the 11th and 12th February, 1957. The following Groups and Bodies, by invitation, sent representatives: the Pathologists' Group of the Medical Association of South Africa, five members; the Society of Medical Laboratory Technologists of South Africa, four members; the Director of Hospitals—Transvaal Provincial Administration; the Director of Hospitals—Natal Provincial Administration, represented by the Provincial Pathologist; and the Secretary for Health, represented by the Senior Government Pathologist.

On the first day the Committee received the representatives of the various organisations, questioned them, and discussed certain points

with them. On the second day a joint session was held when the Committee discussed, in detail, all the points raised. Considerable unanimity was reached, particularly on the following points:—

1. It was desirable that a register for medical technologists should be maintained.
2. The register should be the responsibility of the South African Medical and Dental Council.
3. Training should be undertaken with the assistance of Technical Colleges throughout the Union; training by Universities would be accepted subject to the rules.

   Didactic training and practical training should proceed contemporaneously for a period of **at least five years;** didactic training should be completed by the end of the first three years and after an examination the candidate should receive a certificate of having had a general training in medical laboratory technique. This would not yet entitle him to registration as a medical technologist.

   The student would then choose a specific subject in which he would specialise and would be examined in this subject at the end of a further two-year period.
4. The conference agreed that the establishment of a specialised national examining body was an urgent necessity and that it was desirable that the Department of Education, Arts and Science should undertake the formation of such a body as it had the necessary powers to conduct local examinations and issue national diplomas. The Department should be assisted and advised by a Consultative Body on which Pathologists, Medical Technologists and the South African Medical and Dental Council should be represented. It was also agreed that the Committee would recommend to Medical Council that a controlling committee for medical laboratory technologists should be set up as a committee of Council or as a subcommittee of the Auxiliaries Committee.

The conference also discussed the position of laboratory assistants, technical assistants or laboratory aides and agreed on the following points: that some form of control of this type of personnel should be instituted; that the limitations and duties of these persons should be defined in writing; that they should be under the control of qualified technologists; and that the ratio of technical assistants to qualified medical laboratory technologists should be laid down.

The outcome of these deliberations was a swing away from the all-round training of the existing rules to a more specialised training after an enhanced training in general labortory procedures.

Following the lead given by this Committee, the South African Medical and Dental Council established, as a sub-committee of its Supplementary Health Services Committee (previously the Auxiliaries Committee) a special ad hoc committee to deal with all matters relating to medical technologists. The composition of this committee was:—

South African Medical and Dental Council—Chairman and Vice-Chairman;

Medical Association of South Africa—three members;

Society of Medical Laboratory Technologists of South Africa—three members;

Union Health Department—one member;

Department of Education, Arts and Science—one member.

The committee met on the 28th June, 1958, and again on the 28th July, and formulated a training scheme for medical technologists for submission as amendments to the existing rules. This now provided for an intermediate training of two years' duration comprising chemistry, physics, anatomy, physiology, instrumentation and general laboratory techniques. Candidates successful in the Intermediate Examination would then proceed to a Final Examination after not less than three further years in *one* of the subjects: microbiology, chemical pathology, histopathology, haematology, blood transfusion technology, virology, parasitology and helminthology, or a general examination in the composite subject clinical pathology. Detailed syllabuses were provided for each subject. The Registrar thereupon compiled an amendment to the Rules and Regulations incorporating the above for submission to the Secretary for Health, and the Society hoped that some finality had been reached and that we could expect to see organised, national training in the near future.

But, whilst this had been taking place, a committee formed by the Public Service Commission had met in August, 1958, to consider the training of medical technologists in the Government Department of Health, and the convener of this committee has now lodged a protest at the proposed amendments on the grounds that all technical training schemes in the Public Service occupy a three-year period of training and that salary scales are based on this, with the consequent result that a medical technologist would be two years behind his colleagues and recruitment would be adversely affected.

If this three-year period of training is of a "sandwich" variety in which a student is enabled to spend six months of each year in full-time study at a Technical College and six months doing practical work in a routine laboratory, then it has much to commend it, but it appears that the need in the Public Service is for generally trained technologists

rather than for specialists and, at the time of writing, it would appear that this view is gathering a considerable amount of support outside the Public Service. The wheel has turned full circle and we are now considering what was considered as long ago as 1949-50.

In view of the protests lodged, the South African Medical and Dental Council is convening a meeting in August, covering as wide a field of interests as possible, to re-open and re-consider all aspects of the training of medical technologists. Perhaps it would not be out of place to draw attention to the Society's memorandum of December, 1950, which provided for a general training followed by specialist training at a much later date.

Perhaps we may soon be able either to stop the wheel turning, or to step off it at a suitable point. Surely a suitable point could be arranged by forming immediately an Examining Board and a controlling committee to organise, nationally, the existing regulations, and to discuss proposals for amending the regulations amidst order, rather than in the present chaos.

EXCHANGE JOURNALS

The following journals are received regularly and members may borrow them on application to

Miss K. LILJESTRAND,
c/o Union Health Laboratory,
P.O. Box 1015,
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The Journal of Medical Laboratory Technology (U.K.).

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Quarterly Review—The Journal of the Central African Association of Medical Laboratory Technologists.

The Filter—California Association of Medical Laboratory Technologists.

Tijdschrift voor Medische Analysten (Holland).

Two Russian Language Journals (U.S.S.R.).

Borrowers may retain the Journals for a period of ten days from the date of receipt and must pay the return postage.

LETTER TO THE EDITOR

c/o S.A. Institute for Medical Research,
Germiston Hospital Branch.

The Editor.

Dear Sir,

With the increase in the number of Tuberculosis Hospitals in South Africa, examinations of sputa for acid-fast organisms are growing proportionately. Laboratories are consequently being asked to examine larger number of these specimens while other investigations do not decrease. We snatch time here and there for "T.B. directs" and at the end of the day our conscience is ever ready to accuse us of neglect in this direction.

With these thoughts in mind I carried out a survey of "T.B. directs" prepared from sputa, with the object of determining for myself the most uniform method which would consume the least possible time and produce satisfactory results. I decided upon counting 400 fields on every sputum slide prepared. After adhering strictly to this rule and excluding speciments consisting mainly of saliva, the following interesting features of the survey were noted:—

% positives	within first	100 fields	88.0%
% positives	within second	100 fields	8.0%
% positives	within third	100 fields	4.0%
% positives	within fourth	100 fields	.1%

I concluded that 300 fields, which do not take very long to examine, is the minimum number required to yield dependable results.

I also noted the number of the field in which the first bacillus or group of bacilli was detected and the subsequent field which yielded a further bacillus. Four specimens in the 1,000 yielded these interesting facts:—

In specimen number 150: I saw one bacillus at the 239th field and two further bacilli at the 800th field.

Specimen number 210: Two bacilli were detected in the ninth field and two at the 528th field.

Specimen number 360: Yielded a bacillus in the first field and the following solitary bacillus was only seen at the 257th field.

In specimen number 780: The first bacillus was seen at the 72nd field and another two at the 200th field.

These figures are quite startling and they certainly prove that constant vigilance is required even when examining the last few fields.

In three cases (A, B and C) I have noted discrepancies occurring where three sputa collected at different times were submitted from a single patient.

In case A two bacilli were detected within the first 100 fields of one of the specimens, while the remaining two prepared slides proved negative after 1,000 fields had been examined. Case B was similar.

Case C produced two positive sputa which were diagnosed within 10 fields, while a third specimen yielded a negative result after 1,500 fields had been examined.

SUMMARY

(1) 300 fields would appear to be the minimum number required to produce dependable results.

(2) Absolute caution must be practised, even unto the 300th field.

(3) Conscience should be satisfied if after 300 fields a specimen proves negative, even though other sputa from the same case have been or are found to be positive.

Thanking you,

I remain,

Yours faithfully,

E. HOLLINGHAM.

IMPORTANT

As from 1st July, 1959, Mr. N. RICHARDSON will assume the position of Honorary General Secretary of the Society of Medical Laboratory Technologists of South Africa, replacing Mr. G. W. WIKELEY who, after eight years as Honorary General Secretary, is now the Editor of this Journal.

Correspondence of a general nature should be addressed to :—

Mr. N. Richardson,
Hon. General Secretary,
Society of Medical Laboratory Technologists of S.A.,
c/o South African Institute for Medical Research,
P.O. Box 1038, JOHANNESBURG.

Correspondence in connection with the South African Journal of Medical Laboratory Technology should be addressed to :—

The Editor,
South African Journal of Medical Laboratory Technology,
c/o Central Pathological Laboratory,
Private Bag,
JACOBS, Natal.

BRANCH OFFICERS

At the Annual General Meetings of constituent branches the following office-bearers were elected:—

Cape Branch

Chairman: Mr. G. Turner.
Vice-Chairman: Mr. W. Constantine.
Hon. Secretary: Mr. J. H. Maytham.
Committee: Messrs. B. Neitler, D. Storey, T. Turner and C. Stewart.
Student Member: Mr. P. Pereira.
Address:
Mr. J. H. Maytham, c/o Department of Bacteriology, Medical School, Mowbray, Cape Town.

Natal Branch

Chairman: Mr. G. W. Wikeley.
Vice-Chairman: Mr. J. L. Herrick.
Hon. Secretary: Mr. P. N. Buck.
Committee: Miss Y. C. Bellville, Messrs. J. R. Hart and D. Wickham.
Student Member: Miss S. M. Peregrine.
Address:
Mr. P. N. Buck, c/o Blood Transfusion Laboratory, Addington Hospital, Durban.

Southern Transvaal Branch

Chairman: Dr. F. A. Brandt.
Hon. Secretary: Mrs. G. M. Tomlin.
Asst. Hon. Secretary: Miss J. Muir.
Committee: Dr. B. Wolstenholme, Messrs. P. Roux, N. Richardson, S. Hayden Smith and D. de Villiers.
Student Member: Mr. A. Caenazzo.
Address:
Mrs. G. M. Tomlin, c/o South African Institute for Medical Research, P.O. Box 1038, Johannesburg.

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The Society's crest as a blazer pocket badge is obtainable from:

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4 Ivy Street,
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Price: £2/7/6 each, plus 6d. postage—Cash with order.

Cheques, etc., should be made payable to "Uniewinkels," Cape Town.

NOTICE TO CONTRIBUTORS

All contributions are to be addressed to:—The Editor, The South African Journal of Medical Laboratory Technology, c/o Central Pathological Laboratory, Private Bag, Jacobs, Natal.

Contributions may be written in English or Afrikaans, and should preferably be typed in double-spacing on foolscap sheets on one side of the paper only.

Figures should be drawn in Indian ink, and all figures and tables should be labelled as such (e.g. Figure 1, Table 1, etc.).

Authors should make adequate references to previous works on their subjects. These should be set out as follows:—Author's surname and initials of Christian names; the year of publication (in parentheses); the name of the journal, which should be abbreviated according to the World List of Scientific Periodicals (see below); the volume number (underlined); and the first page reference.

Example:—Moron, I. B. (1960). J. unsuccess. Med., 20, 99. References to books should give the author's name and initials, the year of publication, title of book, name of publisher, and town in which published.

References should be arranged in alphabetical order of the authors' surnames. If more than one work by the same author is listed, these should appear in chronological order.

Technologists are reminded that regulations demand that all original articles of a technical or scientific nature must be approved by the heads of their departments before being submitted for publication.

Title abbreviations according to World List of Scientific periodicals

All nouns commence with capital letters, and adjectives small letters. Articles, conjunctions and prepositions are omitted.

Examples:—

J. Amer. med. Ass.	*S. Afr. J. clin. Sci.*
Lancet	*Stain Tech.*
Amer. J. clin. Path.	*J. Bact.*

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KENNISGEWING AAN INSENDERS

Alle bydrae moet as gevolg geadresseer word: Die Editeur, Die Suid Afrikaanse Joernal van Mediese Tegnologie, p/a Sentrale Patologiese Laboratorium, P/sak, Jacobs, Natal.

Bydrae mag in Engels of Afrikaans geskryf word en moet verkieslik getik wees dubbel spasiering op folio-papier en net op een kant van die vel.

Figure moet in Indiese ink geteken word en alle figure en tabelle moet geëtikeer word as sulks (b.v. Figuur 1, Tabel 1, ens.).

Auteurs moet voldoende referensies gee tot vorige werke oor hulle onderwerpe. Die moet as volg uiteengesit word:—Auteur se familienaam en voorletters; die jaar van uitgawe (in hakies); die naam van die Joernaal, wat moet verkort volgens die Wêreld Lys van Wetenskaplike Tydskrifte (sien hieronder)r die volume nommer (onderstreep); en die eerste pagina referensie.

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Tegnoloë word daaraan herinner dat regulasies vereis dat alle oorspronklike artikels van tegniese of wetenskaplike aard moet die goedkeuring dra van hulle departementale hoofde voor dit ngestuur word vir publikasie.

Titel verkortings volgens Wêreld Lys van Wetenskapliker Tydskifte

Alle selfstandige naamwoorde moet begin met hoofletters en byvoeglike naamwoorde met klein letters. Artikels, verbindings, en voorsetsels word uitgelaat.

Voorbeelde:—

J. Amer. med. Ass.	*S. Afr. J. clin. Sci.*
Lancet	*Stain Tech.*
Amer. J. clin. Path.	*J. Bact.*

HERDRUKKE EN FOTOGRAWE

Indien aanvraag ingedien word voor publisering, sal 24 herdrukke van oorspronklike artikels vry aan beydraers verskaf word. As in tydelike maatreel word bydraers gevra om die koste van publisering van fotos en tekeninge wat saam met artikels gaan self te betaal.

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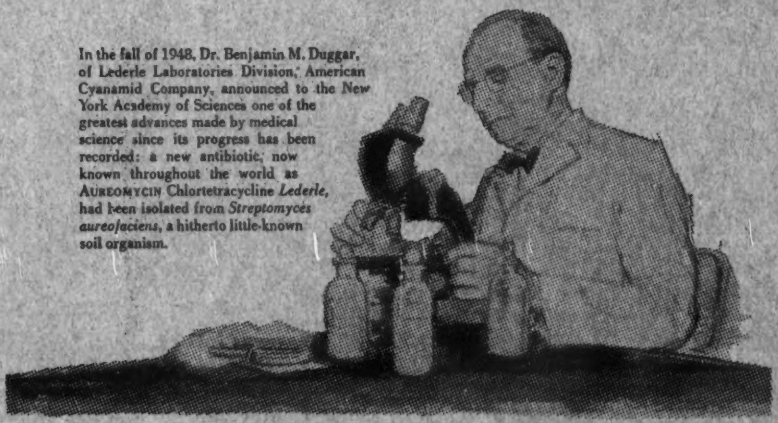

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